

We claim:

- 1    1.    An apparatus, comprising:  
2            a table containing a plurality of entries, each entry including a frequency field  
3                      and a voltage field; and  
4            a register coupled to the table and having a selection field to select one of the  
5                      plurality of entries.
- 1    2.    The apparatus of claim 1, wherein the register also has a limit field to specify  
2            how many entries are selectable.
- 1    3.    The apparatus of claim 2, wherein the selection field is a read-write field and  
2            the limit field is a read-only field.
- 1    4.    The apparatus of claim 1, wherein the frequency field includes a processor  
2            clock frequency indicator.
- 1    5.    The apparatus of claim 4, wherein the processor clock frequency indicator is a  
2            multiplier to be used with a phase locked loop circuit to generate a processor clock  
3            frequency.
- 1    6.    The apparatus of claim 1, wherein the voltage field includes a processor  
2            operating voltage identifier.

1     7.     The apparatus of claim 1, wherein the table is disposed in non-volatile memory.

1     8.     The apparatus of claim 7, wherein the table includes at least two entries.

1     9.     A computer system, comprising:  
2         a clock generator to selectively output a clock signal at any of a plurality of  
3                 selectable processor clock frequencies;  
4         a power supply to selectively output any of a plurality of selectable processor  
5                 operating voltages;  
6         a table coupled to the clock generator and the power supply and containing a  
7                 plurality of entries, each entry including a frequency field and a voltage  
8                 field; and  
9         a register coupled to the table and having a selection field to select one of the  
10                 plurality of entries.

1     10.    The system of claim 9, wherein the register also has a limit field to specify how  
2         many entries are selectable.

1     11    The system of claim 10, wherein the selection field is a read-write field and the  
2         limit field is a read-only field.

1     12.    The system of claim 9, wherein the frequency field includes a processor clock  
2         frequency indicator.

1 13. The system of claim 12, wherein the processor clock frequency indicator is a  
2 multiplier to be used with a phase locked loop circuit to generate the processor clock  
3 frequency.

1 14. The system of claim 9, wherein the voltage field includes a processor operating  
2 voltage identifier.

1 15. The system of claim 9, wherein the table is disposed in non-volatile memory.

1 16. The system of claim 15, wherein the table includes at least two entries.

1 17. A method, comprising:  
2 writing into a selection field of a register;  
3 using a content of the selection field to select one of a plurality of entries in a  
4 table, each entry having a frequency field and a voltage field.

1 18. The method of claim 17, wherein a content of the frequency field indicates a  
2 processor clock frequency.

1 19. The method of claim 17, wherein a content of the voltage field identifies a  
2 processor operating voltage.

1 20. The method of claim 17, further comprising:  
2 using a content of a limit field in the register to determine how many entries are  
3 in the plurality of entries.

1 21. The method of claim 17, further comprising:

2 using a content of the frequency field of the selected one of the plurality of

3 entries to control an operating frequency of a processor clock.

1 22. The method of claim 21, wherein using includes using the content of the

2 frequency field as a multiplier to control an output frequency of a phase locked loop.

1 23. The method of claim 17, further comprising:

2 using a content of the voltage field of the selected one of the plurality of entries

3 to control an operating voltage to a processor.

1 24. The method of claim 23, wherein using includes using the content of the voltage

2 field to select from a plurality of operating voltages to the processor.

1 25. The method of claim 17, wherein a content of the frequency field and a content

2 of the voltage field in a selected entry of the table are matched to produce a

3 combination of processor clock frequency and processor operating voltage that are

4 operable in an associated processor.

1 26. A machine-readable medium having stored thereon instructions, which when

2 executed by a processor cause said processor to perform:

3 determining a desired combination of processor clock frequency and processor

4 operating voltage; and

5 writing to a register to select the desired combination of processor clock  
6 frequency and processor operating voltage from a table.

1 27. The medium of claim 26, further comprising:  
2 reading from the register to determine the current combination of processor  
3 clock frequency and processor operating voltage.

1 28. The medium of claim 26, further comprising:  
2 reading from the register to determine how many combinations of processor  
3 clock frequency and processor operating voltage are available to be  
4 selected.

1 29. The medium of claim 26, wherein:  
2 determining a desired combination is based on at least one of:  
3 a performance goal;  
4 a power consumption goal; and  
5 operating characteristics of the processor.